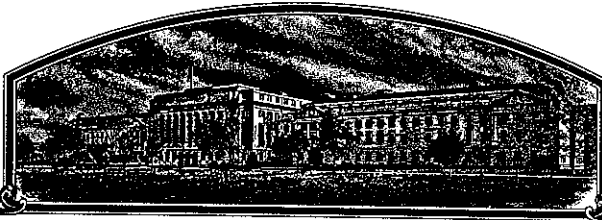


No.

8500123



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

DeKalb-Pfizer Genetics

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN

'18014'



In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D. C. this 30th day of April in the year of our Lord one thousand nine hundred and eighty-six.

Attest

Kenneth A. ...
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Richard E. Lyng
Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

FORM APPROVED
OMB NO. 40-R3822

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY IB014		1b. VARIETY NAME IB014		FOR OFFICIAL USE ONLY PV NUMBER 8500123	
2. KIND NAME Corn		3. GENUS AND SPECIES NAME Zea Mays		FILING DATE 4/26/85	TIME 3:30 P.M. X
4. FAMILY NAME (BOTANICAL) Gramineae		5. DATE OF DETERMINATION Summer 1982		FEE RECEIVED \$ 1,800 \$ 200	DATE 4/26/85 3/24/86
6. NAME OF APPLICANT(S) DeKalb-Pfizer Genetics		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 3100 Sycamore Road DeKalb, IL 60115		8. TELEPHONE AREA CODE AND NUMBER 815/756-3571	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) General Partnership		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION		11. DATE OF INCORPORATION	
* 12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: Waddell A. Biggart, Esq., Sughrue, Mion, Zinn, Macpeak & Seas, 1776 K St., N.W., Washington, D.C. 20006; Eric Christophersen, Esq., 3100 Sycamore Road, DeKalb, Illinois 60115; Dr. James H. Monroe, Legal Division, Pfizer Inc., 235 E. 42nd St., NY, NY 10017 (212) 573-2369					

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☒ 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☐ YES ☒ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☒ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

~~16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☐ YES ☐ NO~~

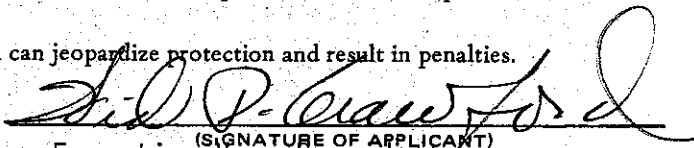
17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

April 19, 1985

(DATE)


(SIGNATURE OF APPLICANT)
Executive Vice President
DEKALB-PFIZER GENETICS

(SIGNATURE OF APPLICANT)

FORM GR-470 (1-78)

NOTE: *Please address all correspondence to Waddell A. Biggart, Esq., Washington, D.C.

8500123

Exhibit A. Origin and Breeding History of the Variety

Origin and Breeding History of Dent Corn Inbred IB014

Summer 1978	The cross 3901 X H99 was made at Windfall Indiana by Michael Floyd. H99 was the female (range 109 row 31) and 3901 was the male (panel 82).
Summer 1979	3901 was used as the recurrent parent to the cross 3901 X H99. 3901 was the male (range 108 row 19) and 3901 X H99 was the female (range 108 row 20).
Winter 1979	The backcross 3901"H99 was self pollinated (range 66 row 33).
Summer 1980	Approximately 1450 plants were grown in 15 rows at Windfall, Indiana. Seventeen self-pollinated ears were saved. (Range 53 rows 22-36)
Winter 1980	Seventeen ear rows were grown. Three self pollinated ears were saved from ear four. (Range 216 row 49).
Summer 1981	Three ears were grown at Windfall, IN. Two self pollinated ears were saved from ear two (Range 29 row 73).
Winter 1981	Two ears were grown. Three self pollinated ears were saved from ear one. (Range 490 row 19). Test crosses were made to A632HT and B73HT.
Summer 1982	Three ears were grown at Windfall, IN. Twelve self pollinated ears were saved from ear one to bulk and to name IB014 (Range S5 row 92). Test crosses made with IB014 were grown.

8500123

STATEMENT OF UNIFORMITY

This inbred was assigned the code IB014 after five generations of selfing and was judged uniform for breeding use. IB014 has been reproduced and judged uniform for breeding use in winter and summer programs for an additional seven generations.


Michael Lee Floyd

Michael Lee Floyd
Associate Research Station Manager

8500/23

STATEMENT OF VARIANTS

The corn inbred IB014 is uniform for all traits except prolificacy. Ninety-Five percent of the plants express two or more ears while five percent are only single eared.


Michael Lee Floyd
Associate Research Station Manager

03370/4/002
DEKALB-PFIZER GENETICS

Applicant

8500123

Field #
81

BOX 357
ILLINOIS IL 62539

IB014 Exhibit A, Appendix I

TEST Date OCTOBER 31, 1984

Test No. 404561

IB014

Lot No. 220907

Kind & Variety (Producers Declaration)

FOUNDATION

AF359

CORN

THIS SAMPLE MEETS CERTIFICATION REQUIREMENTS BASED ON SOURCE OF SEED,
FIELD INSPECTION AND LABORATORY ANALYSIS

GERMINATION REPORT: 400 Seeds

Germination	%	Strong	%	Cold Test	%
Hard Seed	%	Pod & Stem Blight	%	A-A Test	%
Dead Seed	%	Other Diseases	%	Tetrazolium	%

PURITY REPORT:

Pure Seed	%	Test Weight	LBS.
Weed Seeds	%		
Other Crop Seeds	%	Moisture	10.80%
Total Inert Matter	%		
Broken Seed	%	Total Weight of Sample Examined:	500.00
Other Inert	%		

Dockage from 1,000 grams:

Noxious Weeds	Other Weed Seeds
NONE FOUND	NONE FOUND
Other Crop Seeds	Inert Matter
NONE FOUND	


REMARKS:

This certifies that the sample of seed submitted of the lot designated above has been analyzed in accordance with
the RULES FOR SEED TESTING AS ADOPTED BY THE ASSOCIATION OF OFFICIAL SEED ANALYSTS.
VIGOR TESTING INFORMATION CANNOT BE USED FOR LABELING PURPOSES.

ILLINOIS CROP IMPROVEMENT ASSOCIATION, INC.

508 South Broadway, Urbana, Illinois 61801

Telephone: 217-367-4053


Registered Seed Technologist

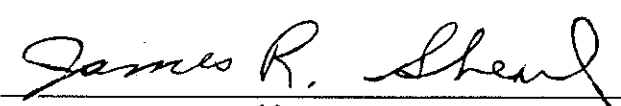

Manager

Exhibit B. Novelty Statement

IB014 is a yellow dent inbred line derived from a single cross (3901 x H99). The public line that is most similar to IB014 is A632Ht.

IB014 is significantly different from A632Ht in plant height (150.97 vs. 144.33), ear height (84.73 vs. 81.77), ear length (15.04 vs. 17.94), leaf angle (27.17 vs 49.33) and branch angle (22 vs. 47). (See Exhibit B, Appendix I).

IB014

Exhibit B. Novelty Statement

Appendium I

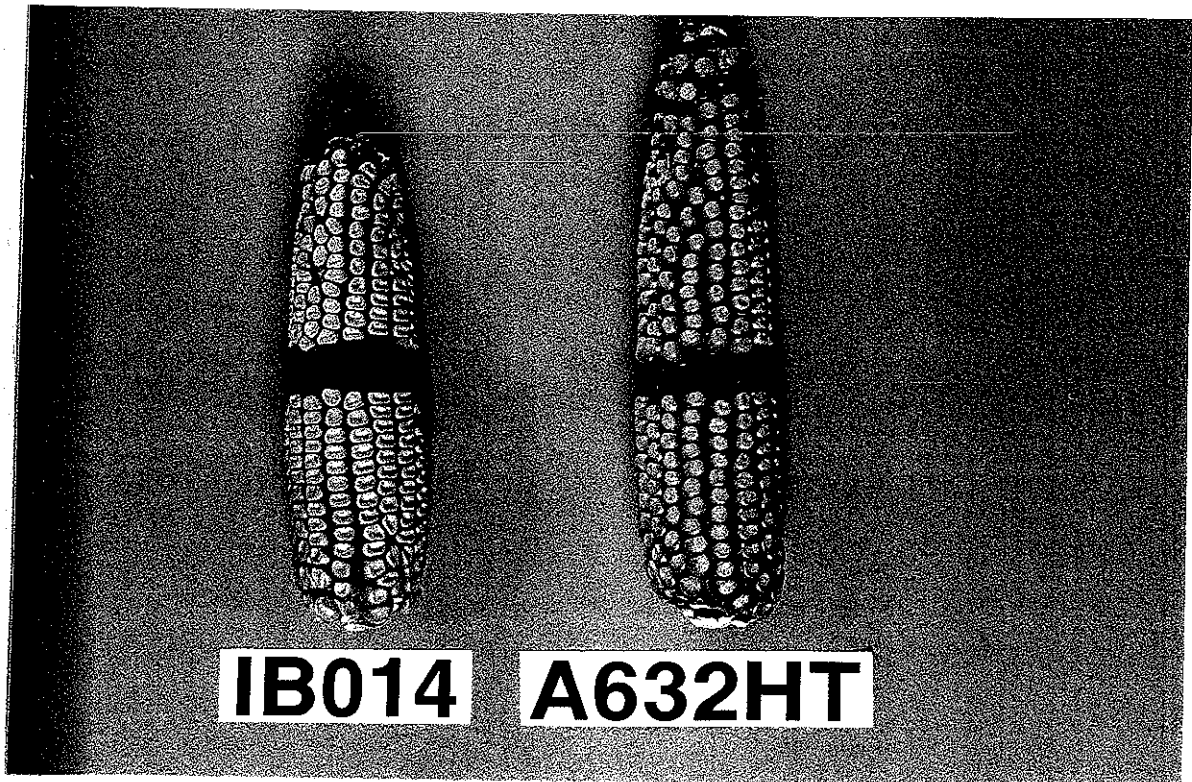
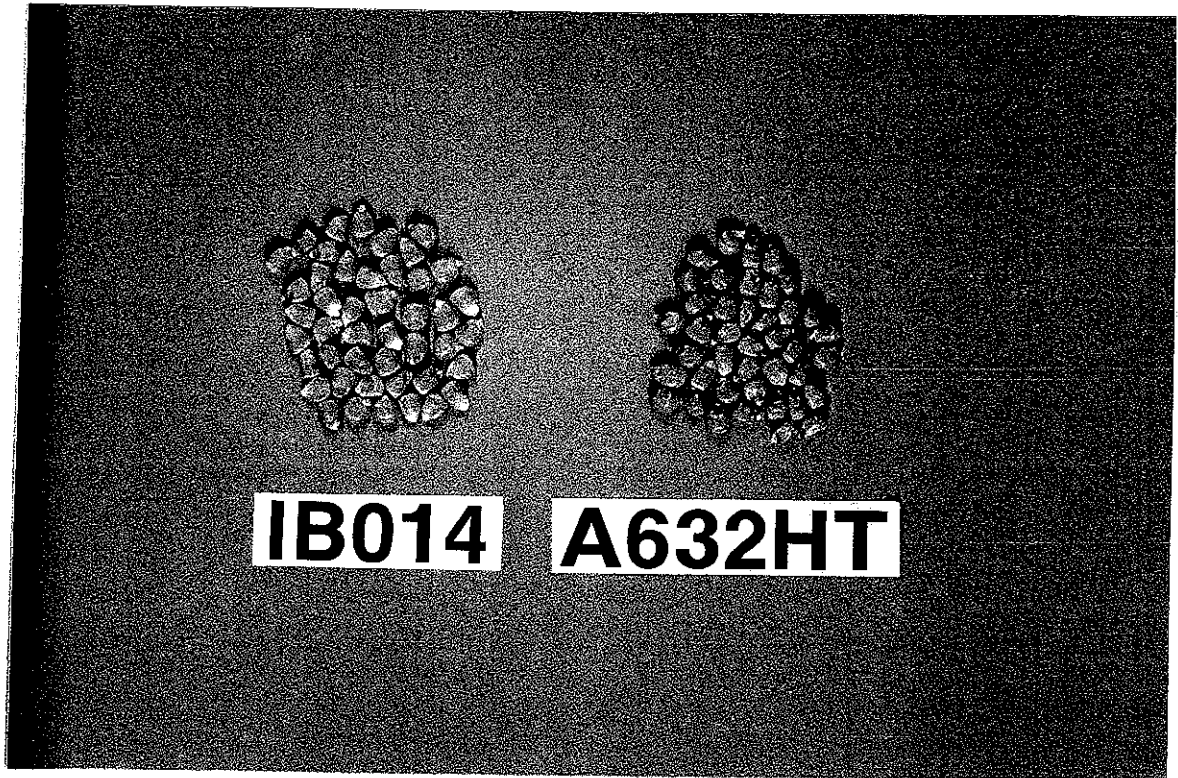
IB014 vs. A632Ht

Plant and Ear Characteristics	IB014	A632Ht	Testing Hypothesis
			$H_0: \mu_1 = \mu_2$ $H_A: \mu_1 \neq \mu_2$
1. Plant height (cm)	150.97	144.33	Sig. ($\alpha = 0.1$)
2. Ear height (cm)	84.73	81.77	Sig. ($\alpha = 0.1$)
3. Ear length (cm)	15.04	17.94	Sig. ($\alpha = 0.1$)
4. Leaf angle ($^\circ$)	27.17	49.33	Sig. ($\alpha = 0.1$)
5. Branch angle ($^\circ$)	22.0 $^\circ$	47.0 $^\circ$	Sig. ($\alpha = 0.1$)

1) $n_1 \neq n_2$

2) Detailed calculations are available.

13B. Exhibit B. Novelty Statement
Appendium II.



IB014 and A632Ht have a dent kernel. The cob color of IB014 and A632Ht is red. The ear length of IB014 is significantly shorter than A632Ht.

OBJECTIVE DESCRIPTION OF VARIETY
CORN (ZEA MAYS)

NAME OF APPLICANT(S) DeKalb Pfizer Genetics	FOR OFFICIAL USE ONLY
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 3100 Sycamore Road DeKalb, Illinois 60115	PVPO NUMBER 8500123
	VARIETY NAME OR TEMPORARY DESIGNATION IB 104

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g., or) when number is either 99 or less or 9 or less.

1. TYPE:

1 = SWEET

2 = DENT

3 = FLINT

4 = FLOUR

5 = POP

6 = ORNAMENTAL

2. REGION WHERE BEST ADAPTED IN THE U.S.A.:

1 = NORTHWEST

2 = NORTHCENTRAL

3 = NORTHEAST

4 = SOUTHEAST

5 = SOUTHCENTRAL

6 = SOUTHWEST

7 = MOST REGIONS

3. MATURITY (In Region of Best Adaptability):

(Under "omments" (pg. 3) state how heat units were calculated)

DAYS FROM EMERGENCE TO 50% OF PLANTS IN SILK

HEAT UNITS

DAYS FROM 50% SILK TO OPTIMUM EDIBLE QUALITY

HEAT UNITS

DAYS FROM 50% SILK TO HARVEST AT 25% KERNEL MOISTURE

HEAT UNITS

4. PLANT:

CM. HEIGHT ~~(to flag leaf)~~ (to flag leaf)

CM. EAR HEIGHT (To base of top ear)

CM. LENGTH OF TOP EAR INTERNODE

Number of Tillers:

1 = NONE

2 = 1-2

3 = 2-3

4 = > 3

Number of Ears Per Stalk:

1 = SINGLE

2 = SLIGHT TWO-EAR TENDENCY

3 = STRONG TWO-EAR TENDENCY 4 = THREE-EAR TENDENCY

Cytoplasm Type:

1 = NORMAL

2 = "T"

3 = "S"

4 = "C"

5 = OTHER (Specify)

5. LEAF (Field Corn Inbred Examples Given):

Color:

1 = LIGHT GREEN (HY)

2 = MEDIUM GREEN (WF9)

3 = DARK GREEN (B14)

4 = VERY DARK GREEN (K166)

Angle from Stalk (Upper half):

1 = < 30°

2 = 30-60°

3 = > 60°

Sheath Pubescence:

1 = LIGHT (W22)

2 = MEDIUM (WF9)

3 = HEAVY (OH26)

Marginal Waves:

1 = NONE (HY)

2 = FEW (WF9)

3 = MANY (OH7L)

Longitudinal Creases:

1 = ABSENT (OH51)

2 = FEW (OH56A)

3 = MANY (PA11)

Width:

CM. WIDEST POINT OF EAR NODE LEAF

Length:

CM. EAR NODE LEAF

NUMBER OF LEAVES PER MATURE PLANT

6. TASSEL:

NUMBER OF LATERAL BRANCHES

Branch Angle from Central Spike:

1 = $< 30^\circ$ 2 = $30-40^\circ$ 3 = $> 45^\circ$

Penduncle Length:

CM. FROM TOP LEAF TO BASAL BRANCHES

Pollen Shed:

1 = LIGHT (WF9)

2 = MEDIUM

3 = HEAVY (KY21)

Anther Color:

1 = YELLOW

2 = PINK

3 = RED

4 = PURPLE

5 = GREEN

Glume Color:

6 = OTHER (Specify) _____

Pollen Restoration for Cytoplasm (0 = Not Tested, 1 = Partial, 2 = Good)

"T"

"S"

"C"

☒

OTHER (Specify Cytoplasm and degrees of restoration)

Not tested

7. EAR (Husked Ear Data Except When Stated Otherwise):

CM LENGTH

MM. MID-POINT
DIAMETER

GM. WEIGHT

Kernel Rows:

1 = INDISTINCT

2 = DISTINCT

NUMBER

1 = STRAIGHT

2 = SLIGHTLY CURVED

3 = SPIRAL

Silk Color (Exposed at Silking Stage):

1 = GREEN

2 = PINK

3 = SALMON

4 = RED

5 = Green-yellow

Husk Color:

FRESH

1 = LIGHT GREEN

2 = DARK GREEN

3 = PINK

DRY

4 = RED

5 = PURPLE

6 = BUFF

Husk Extention: (Harvest Stage)

1 = SHORT (Ears Exposed) 2 = MEDIUM (Barely Covering Ear)

3 = LONG (8-10CM Beyond Ear Tip)

4 = VERY LONG (> 10 CM)

Husk Leaf:

1 = SHORT (< 8 CM)

2 = MEDIUM (8-15 CM)

3 = LONG (> 15 CM)

Shank:

CM LONG

NO. OF INTERNODES

Position at Dry Husk Stage:

1 = UPRIGHT

2 = HORIZONTAL

3 = PENDENT

Taper:

1 = SLIGHT

2 = AVERAGE

3 = EXTREME

Drying Time (Unhusked Ear):

1 = SLOW

2 = AVERAGE

3 = FAST

8. KERNEL (Dried):

Size (From Ear Mid-Point):

MM LONG

MM. WIDE

MM. THICK

Shape Grade (% Rounds)

1 = < 20

2 = 20-40

3 = 40-60

4 = 60-80

5 = > 80

8. KERNEL (Dried) :

Pericarp Color: 1 = COLORLESS 2 = RED-WHITE 3 = TAN 4 = BRONZE
 5 = BROWN 6 = LIGHT RED 7 = CHERRY RED
 8 = VARIEGATED (Describe) _____

Aleurone Color: 1 = HOMOZYGOUS 2 = SEGREGATING (Describe) _____

1 = WHITE 2 = PINK 3 = TAN 4 = BROWN 5 = BRONZE 6 = RED
 7 = PURPLE 8 = PALE PURPLE 9 = VARIEGATED (Describe) _____

& Endosperm Color: 1 = WHITE 2 = PALE YELLOW 3 = YELLOW 4 = PINK-ORANGE 5 = WHITE CAP.

Endosperm Type:

1 = SWEET (su1) 2 = EXTRA SWEET (sh2) 3 = NORMAL STARCH 4 = HIGH AMYLOSE STARCH
 5 = WAXY STARCH 6 = HIGH PROTEIN 7 = HIGH LYSINE 8 = OTHER (Specify) _____

GM. WEIGHT /100 SEEDS (Unsize Sample)

9. COB:

MM. DIAMETER AT MID-POINT

Strength:

1 = WEAK 2 = STRONG

Color:

1 = WHITE 2 = PINK 3 = RED 4 = BROWN
 5 = VARIEGATED 6 OTHER (Specify) _____

10. DISEASE RESISTANCE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

<input type="text" value="0"/> STALK ROT (Diplodia)	<input type="text" value="0"/> STALK ROT (Fusarium)	<input type="text" value="0"/> STALK ROT (Gibberella)
<input type="text" value="2"/> NORTHERN LEAF BLIGHT	<input type="text" value="2"/> SOUTHERN LEAF BLIGHT	<input type="text" value="0"/> SMUT
<input type="text" value="0"/> SOUTHERN RUST	<input type="text" value="0"/> CORN SMUT	<input type="text" value="0"/> BACTERIAL WILT
<input type="text" value="0"/> BACTERIAL LEAF BLIGHT	<input type="text" value="0"/> MAIZE DWARF MOSAIC	<input type="text" value="0"/> STUNT
<input type="text" value=""/> OTHER (Specify) Anthracnose (foliar phase)-2; Eyespot-2		

11. INSECT RESISTANCE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

<input type="text" value="2"/> CORNBORER	<input type="text" value="0"/> EARMORM	<input type="text" value="0"/> SAPBEETLE	<input type="text" value="0"/> APHID
<input type="text" value="0"/> ROOTWORM (Northern)	<input type="text" value="0"/> ROOTWORM (Western)		
<input type="text" value="0"/> ROOTWORM (Southern)	<input type="text" value="0"/> OTHER (Specify) _____		

12. VARIETIES MOST CLOSELY RESEMBLING THAT SUBMITTED FOR THE CHARACTERS GIVEN:

CHARACTER	VARIETY	CHARACTER	VARIETY
Maturity	A632Ht	Kernel Type	A632Ht
Plant Type		Quality (Edible)	
Ear Type		Usage	

REFERENCES:

- U.S. Department Agriculture. Yearbook 1937.
 Corn: Culture, Processing, Products. 1970 Avi Publishing Company, Westport, Connecticut. (Numerous Authors)
 Emerson, R.A., G.W. Beadle, and A.C. Fraser. A Summary of Linkage Studies in Maize. Cornell A.E.S., Mem. 180. 1935.
 The Mutants of Maize. 1968. Crop Science Society of America. Madison, Wisconsin.
 Stringfield, G.H. Maize Inbred Lines of Ohio. Ohio A.E.S. Bul. 831. 1959.
 Butler, D.R. 1954 - A System for the Classification of Corn Inbred Lines - PhD. Thesis, Ohio State University.

COMMENTS: Heat Unit Calculations:

$$\text{GDU} = \frac{\text{Daily Max. temp. } (\leq 86^{\circ}\text{F}) + \text{Daily Min. temp. } (\geq 50^{\circ}\text{F})}{2} - 50^{\circ}\text{F}$$

11

Exhibit D.

Additional Description of the Variety.

The isozyme analysis of IB014 and A632Ht shows genetic differences at four different loci: Acph - 2 vs. 4, B-Glu - 6 vs. 7, MDHB - 3, 3.5 vs. 6, and PHI - 4 vs. 5.

(See Exhibit D, Appendix I).

Comment:

This observation is based on preliminary results and the final isozyme results will be submitted later.

Additional Description of the Variety.

Appendium I

Isozyme Genotypes of Selected DEKALB Parents

LOCUS	Alleles Present	
	IB014	A632Ht
# of plants assayed	6	6
ACPH	2	4
ADH	4	4
Cat	9	9
EP	6	6
GOT U	4	4
GOT M	4	4
GOT L	4	4
B-Glu	6	7
IDH A	4	4
IDH B	6	6
MDH A	6*	6*
MDH B	3,3.5	6
MDH C	16	16
MDH D	12	12
MDH E	12	12
PGM A	9	9
PGM B	4	4
PHI	4	5

* Allele is probably 6 but null cannot be ruled out.

The technique of using isozymes for genotyping or "fingerprinting" is described by the following reference:

Goodman, M.M. and C.W. Stuber. 1980
Genetic identification of lines and crosses using isoenzyme electrophoresis. Proceedings of the Thirty-fifth Annual Corn and Sorghum Industry Research Conference.

8500123

LAW OFFICES
SUGHRUE, MION, ZINN, MACPEAK & SEAS
1776 K STREET, N. W.
WASHINGTON, D. C. 20006-2359

April 26, 1985

EXHIBIT E

TELEPHONE
(202) 293-7060
—
CABLE ADDRESS
LEXPAT WASHINGTON
—
TELEX 248503
—
FACSIMILE
(202) 293-7860

Plant Variety Protection Office
United States Department of
Agriculture
AMS-USDA
Room 500 -- National Agricultural
Library Building
Beltsville, Maryland 20705

Re: Plant Variety Protection Certificate Application
Hybrid Inbred Corn Line IB014

Dear Sirs:

Mr. Michael L. Floyd, breeder of corn line IB014, was from 1973 through July 14, 1982, a full-time employee of Pfizer Genetics, Inc. DeKalb Pfizer Genetics, a general partnership between DeKalb AgResearch, Inc. and Pfizer Genetics, Inc., succeeded on July 15, 1982, to substantially all of the assets of Pfizer Genetics, Inc., including all of the rights to IB014. From July 15, 1982, to the present, Mr. Floyd has been a full-time employee of DeKalb Pfizer Genetics.

Very truly yours,

WAB:aa

Waddell A. Biggart
Waddell A. Biggart